

Applicant: Jingyue Ju

U.S. Serial No.: 10/591,520

Filed: June 4, 2007

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#### **REMARKS**

Claims 1-15 and 17-22 are pending in the subject application. By this Amendment, applicant has hereinabove cancelled claims 17, 19 and 21 without disclaimer or prejudice to applicant's right to pursue the subject matter of these claims in the future, and has amended claims 18, 20 and 22. In addition, applicant has added new claim 23 which is directed to the subject matter of previous claim 18. Accordingly, upon entry of this Amendment, claims 1-15, 18, 20 and 22 will be pending and under examination.

Support for amended claims 18 and 20, and new claim 23 may be found in the specification as originally filed at, *inter alia*, page 17, lines 5-26. Claim 20 has been amended to correctly display the claimed structure. Claim 22 has been amended to correct a typographical error.

Applicant maintains that the amendments to the claims raise no issue of new matter. Accordingly, applicant respectfully requests entry of this Amendment.

#### **Rejection under 35 U.S.C. §102(b)**

In the July 8, 2008 Office Action, the Examiner rejected claim 21 under 35 U.S.C. §102(b) as allegedly anticipated by Stemple et al. (WO 00/53805). The Examiner asserted that Stemple et al. disclose modified nucleosides that are useful for nucleic acid sequencing.

#### **Applicant's Response**

In response, applicant respectfully traverses the Examiner's rejection. However, in order to expedite prosecution, and without

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conceding the correctness of the Examiner's position, applicant has hereinabove cancelled claim 21.

#### **Rejection under 35 U.S.C. §102(e)**

In the July 8, 2008 Office Action, the Examiner rejected claims 17 and 19 under 35 U.S.C. §102(e) as allegedly anticipated by Ju et al. (U.S. Patent No. 6,664,079). The Examiner asserted that Ju et al. discloses identical compounds as the instant claimed composition, referring to figure 9 of the specification.

#### **Applicant's Response**

In response, applicant respectfully traverses the Examiner's rejection. However, in order to expedite prosecution, and without conceding the correctness of the Examiner's position, applicant has hereinabove cancelled claims 17 and 19.

#### **Claim Objections**

##### **Claim 20**

On page 3 of the July 8, 2008 Office Action, the Examiner objected to claim 20 for the informality that the ring attached to the bodipy moiety is cut off at the edge of the paper.

#### **Applicant's Response**

In response, applicant has amended claim 20 to correctly display the claimed structure.

##### **Claim 18**

The Examiner also objected to claim 18 as being dependent upon a rejected base claim, but would be allowed if rewritten in an independent form, including all of the limitations of the base

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claim and any intervening claim.

Applicant's Response

Applicant acknowledges that claim 18 would be allowed if amended as suggested by the Examiner. Similarly, pending claim 20 also depends on or otherwise includes the limitations of claim 21.

Applicant notes that claims 18 and 20 have been amended to recite structures as independent claims and that new claim 23 is directed to the structure previously recited in claim 18. Applicant maintains that the structures claimed in amended claim 18, and claims 20 and 23 dependent therefrom are not taught by the prior art. Accordingly, the applicant understands the claims to be in condition for allowance.

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**Information Disclosure Statement**

The July 8, 2008 Office Action states on page 3 that the Supplemental Information Disclosure Statement filed by applicant on May 7, 2007 has not been considered because none of the references were received by the Examiner. Applicant respectfully provides as **Exhibit A**, a copy of a stamped postcard receipt indicating that the Supplemental Information Disclosure Statement and that copies of references 1-99 have been received by the U.S. Patent Office on May 10, 2007.

As a courtesy, applicant herewith submits as **Exhibit B** to this response a copy of their May 7, 2007 Supplemental Information Disclosure Statement, along with copies of the 99 items cited therein. Applicant respectfully requests the Examiner consider all of the documents listed in the May 7, 2007 Supplemental Information Disclosure Statement and initial the citation on the form PTO-1449 provided.

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**Supplemental Information Disclosure Statement**

In accordance with the duty of disclosure under 37 C.F.R. §1.56, applicant directs the Examiner's attention to the following items, which are listed on the Substitute PTO-1449 form attached hereto as **(Exhibit C)**. Items 1-13 are U.S. Patents and U.S. Patent Application Publications, and no copies of these items are attached hereto as permitted by 37 C.F.R. §1.98(a)(2)(ii).

Copies of items 14-61 are attached hereto as **Exhibits 1-48**, respectively.

1. U.S. Patent No. 7,057,031 B2, issued June 6, 2006, Olejnik et al.
2. U.S. Patent No. 6,210,891, issued April 3, 2001, Nyren et al.
3. U.S. Patent No. 6,087,095, issued July 11, 2000, Rosenthal et al.
4. U.S. Patent No. 4,711,955, issued December 8, 1987, Ward et al.
5. U.S. Patent Application Publication No. 2002-0190680, Rothschild et al., published October 09, 2003
6. U.S. Patent Application Publication No. 2002-0012966, Shi et al., published January 31, 2002
7. U.S. Patent Application Publication No. 2003-0054360 A1, Gold et al., published March 20, 2003

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8. U.S. Patent Application Publication No. 2003-0198982 A1, Seela et al., published October 23, 2003;
9. U.S. Patent Application Publication No. 2003-0166282 A1, Brown et al., published September 4, 2003
10. U.S. Patent Application Publication No. 2005-0239194 A1, Gorenstein et al., published October 27, 2005;
11. U.S. Patent Application Publication No. 2006-0105461 A1, Tom-Moy et al., published May 18, 2006;
12. U.S. Patent Application Publication No. 2006-0240439, Smith et al., published October 26, 2006
13. U.S. Patent Application Publication No. US 2007-0275387 A1, Ju et al., published November 29, 2007
14. PCT International Publication No. WO 08/069973 A2, Ju et al., published June 12, 2008 (**Exhibit 1**);
15. PCT International Publication No. WO/2007/053702, Ju et al., published May 10, 2007; (**Exhibit 2**)
16. PCT International Publication No. WO/2007/053719, Ju et al., published May 10, 2007; (**Exhibit 3**)
17. PCT International Publication No. WO/1992/10587, Dower et al., published June 25, 1992; (**Exhibit 4**)
18. PCT International Publication No. WO/2007/062105, Ju et al. published May 31, 2007; (**Exhibit 5**)

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19. Extended European Search Report issued July 18, 2007 in connection with European Patent Application No. 07004522.4; **(Exhibit 6)**
20. Partial European Search Report issued April 26, 2007 in connection with European Patent Application No. 07004522.4; **(Exhibit 7)**
21. Kraevskii, A.A. et al., (1987), Substrate Inhibitors of DNA Biosynthesis, Molecular Biology, 21:25-29; **(Exhibit 8)**
22. Henner, W.D. et al., (1983), Enzyme Action at 3' Termini of Ionizing Radiation-Induced DNA Strand Breaks, J. Biol. Chem. 258(24):15198-15205; **(Exhibit 9)**
23. Office Action issued October 25, 2002 in connection with U.S. Serial No. 09/972,364; **(Exhibit 10)**
24. Office Action issued March 14, 2003 in connection with U.S. Serial No. 09/972,364; **(Exhibit 11)**
25. Office Action issued August 10, 2007 in connection with U.S. Serial No. 11/119,231; **(Exhibit 12)**
26. Office Action issued September 21, 2007 in connection with U.S. Serial No. 10/380,256; **(Exhibit 13)**
27. Notice of Allowance issued September 6, 2007 in connection with U.S. 10/702,203; **(Exhibit 14)**
28. Restriction Requirement issued in connection with U.S. 10/521,206; **(Exhibit 15)**

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29. Office Action issued November 14, 2007 in connection with U.S. 10/735,081; (**Exhibit 16**)
30. Official Action issued May 21, 2007 in connection with European Patent Application No. 01968905.8; (**Exhibit 17**)
31. Official Action issued March 31, 2006 in connection with European Patent Application No. 01968905.8; (**Exhibit 18**)
32. Tuncel et al. (1999) Catalytically Self-Threading Polyrotaxanes, Chem. Comm. 1509-1510; (**Exhibit 19**)
33. Notification of Transmittal of International Search Report and Written Opinion, issued November 23, 2007; (**Exhibit 20**)
34. Meng et al., (2006), Design and Synthesis of a Photocleavable Fluorescent Nucleotide 3'-O-Allyl-dGTP-PC-Biodipy-FL-510 as a Reversible Terminator for DNA Sequencing by Synthesis, J. Org. Chem 71:3248-3252; (**Exhibit 21**)
35. Li et al., (2003), A photocleavable Fluorescent Nucleotide for DNA Sequencing and Analysis, PNAS, 100(2):414-419; (**Exhibit 22**)
36. Seo et al., (2004), Photocleavable Fluorescent Nucleotides for DNA Sequencing on a Chip Constructed by Site-Specific Coupling Chemistry, PNAS 101(15):5488-5493; (**Exhibit 23**)
37. Seo et al., (2004), Four-Color DNA Sequencing by Synthesis on a Chip Using Photocleavable Fluorescent Nucleotides, PNAS 102(17):5926-5931; (**Exhibit 24**)

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38. Ruparel et al., (2005), Design and Synthesis of a 3'-O-Allyl Photocleavable Fluorescent Nucleotide as a Reversible Terminator for DNA Sequencing by Synthesis, PNAS, 102(17):5932-5937; **(Exhibit 25)**
39. International Search Report issued October 29, 2007 in connection with PCT International Application No. PCT/US 07/13559; **(Exhibit 26)**
40. U.S. Serial No. 11/894,808, filed August 20, 2007; **(Exhibit 27)**
41. U.S. Serial No. 11/894,690, filed August 20, 2007; **(Exhibit 28)**
42. U.S. Serial No. 11/810,509, filed June 5, 2007; **(Exhibit 29)**
43. U.S. Serial No. 09/684,670, filed October 6, 2000, Ju et al.; **(Exhibit 30)**
44. U.S. Serial No. 12/085,343, filed May 19, 2008; **(Exhibit 31)**
45. Official Action issued March 14, 2008 in connection with European Patent Application No. 07004522.4; **(Exhibit 32)**
46. Office Action issued June 24, 2008 in connection with U.S. Serial No. 11/894,690; **(Exhibit 33)**
47. Office Action issued July 8, 2008 in connection with U.S. Serial No. 10/591,520; **(Exhibit 34)**

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48. Notification of Transmittal of International Search Report and Written Opinion, issued February 6, 2008 in connection with International Application No. PCT/US06/42739; (**Exhibit 35**)
49. Notification Concerning Transmittal of Copy of International Preliminary Report on Patentability (Including Written Opinion of the International Searching Authority) issued May 15, 2008 in connection with PCT/US2006/042698; (**Exhibit 36**)
50. Notification of Transmittal the International Search Report and Written Opinion, issued May 22, 2008 in connection with International Application No. PCT/US06/45180; (**Exhibit 37**)
51. Notification of Transmittal the International Search Report and Written Opinion, issued August 12, 2008 in connection with International Application No. PCT/US07/24646; (**Exhibit 38**)
52. Bai et al. (2003) "Photocleavage of a 2-nitrobenzyl linker bridging a fluorophore to the 5' end of DNA," PNAS, Vol. 100, No. 2, pages 409-413; (**Exhibit 39**)
53. Nielsen et al. (2004) "Multiplexed sandwich assays in microarray format," Journal of Immunological Methods, Vol. 290, pages 107-120; (**Exhibit 40**)
54. Zhang et al. (2002) "Synthesis of Releasable Electrophore Tags for Applications in Mass Spectrometry," Bioconjugate Chem, Vol. 13, pages 1002-1012; (**Exhibit 41**)

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55. Office Action issued September 3, 2008 in connection with U.S. Serial No. 11/894,808; **(Exhibit 42)**
56. Nickel W, et al. (1992) "Interactions of azidothymidine triphosphate with the cellular DNA polymerases alpha, delta, and epsilon and with DNA primase". Journal of Biological Chemistry. 267(2):848-854; **(Exhibit 43)**
57. Notification of Transmittal of the International Search Report and the Written Opinion of the International Searching Authority, or the Declaration issued September 9, 2008 in connection with International Application No. PCT/US06/24157; **(Exhibit 44)**
58. PCT International Publication No. WO/2004/018497, Milton et al., published March 4, 2004; **(Exhibit 45)**
59. Hanshaw et al. (2004) "An Indicator Displacement system for fluorescent detection of phosphate oxyanions under physiological conditions," Tetrahedron Letters, Vol. 45, pages 8721-8724; **(Exhibit 46)**
60. U.S. Serial No. 12/084,338, filed April 28, 2008; **(Exhibit 47)**  
**and**
61. U.S. Serial No. 11/922,385 filed December 14, 2007; **(Exhibit 48)**.

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The Examiner is respectfully requested to make these items of record in the present application by initialing and returning a copy of the enclosed Substitute Form PTO 1449.

This supplemental Information Disclosure Statement is being submitted under 37 C.F.R. §1.97(c)(2). Accordingly, applicants enclose a check in the amount of ONE HUNDRED AND EIGHTY DOLLARS (180.00)

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided below.

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No fee, other than the enclosed \$180.00 fee for filing a Supplemental Information Disclosure Statement is deemed necessary in connection with the filing of this Amendment and Supplemental Information Disclosure Statement. However, if any additional fee is required, authorization is hereby given to charge the amount of such additional fee to Deposit Account No. 03-3125.

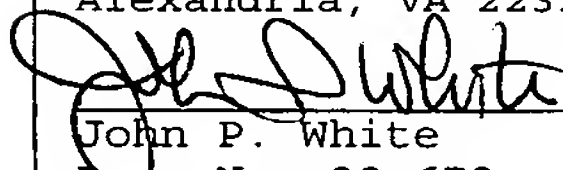
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**Jingyue Ju**

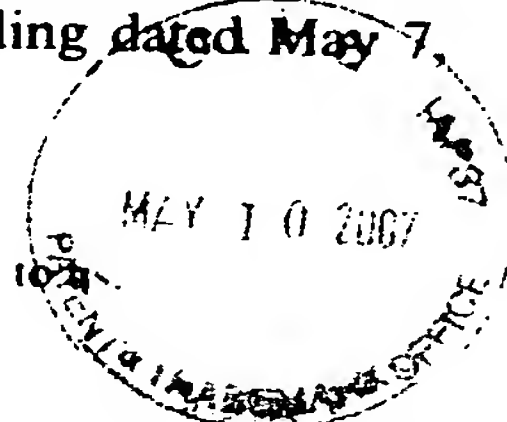
Applicant Columbia (0575) File No. 72067-A-PCT-US Atty. JPW/BJA  
Client \_\_\_\_\_  
Date May 7, 2007

Kindly acknowledge receipt of the accompanying

**Supplemental Information Disclosure Statement** in connection with  
~~Jingyue Ju~~ **PHOTOCLEAVABLE FLUORESCENT NUCLEOTIDES**  
**FOR DNA SEQUENCING ON CHIP CONSTRUCTED BY SITE-**  
**SPECIFIC COUPLING CHEMISTRY, U.S. Serial No. 10/591,520, filed**  
**March 3, 2005** including a PTO Form 1449 as Exhibit A, copies of  
references as Exhibits 1-99, and a Certificate of Mailing dated **May 7,**  
**2007**

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by placing your receiving date stamp hereon and returning to



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Exhibit A